

outlet ; ruts and holes filled, elevations in the road and the shoulders on the side of the road planed off, the grade improved and the road put in a good condition generally. In repairing a road which is in fair condition, commence at the ditch and work towards the centre, scraping lightly with the entire length of the blade, till the last rounds in the middle of the road, when the rear end of the blade is carried high enough to allow the earth to distribute under it. To make the blade penetrate very hard, stony ground, it may be best to use only the point, elevating the rear end considerably. The best finish can be obtained in sod ground by first cutting the sod as thin as possible, then placing them in the middle of the road, and finally going back to the ditch and bringing up earth and levelling over the sods. Ruts or depressions that are too deep to be filled with the machine should be filled in with gravel. Do not fill in more than is necessary, only sufficient to fill the holes.

When gravel or sand cannot be obtained the improvement of a clay road is sometimes difficult. A good under-drain may be laid along the centre of the road and the earth removed from the roadway to a depth of about one foot at the centre, from which point the excavation should rise by a gradual slope to each side. On the bottom of this excavation a layer or bed of hay, straw or coarse grass should be laid to a depth of about four inches (when compacted) and the earth should then be filled in and formed to the true shape of the roadway. This method of treatment will tend to keep the roadway dry and prevent the formation of mud. When the road runs down hill the short ditches connecting the roadway with the side ditches are made with a diagonal pitch down the grade so as to catch the running water in the roadway and carry it to the side ditches.

HOW TO BUILD NEW ROADS.

In building new roads with a machine first mark out your ditches the full width, plowing a light furrow with the point of the blade, carrying the rear end well elevated. On the second round drive the wheels in line with the point along the hollow made the first round, plowing a full furrow with the advance end of the blade, dropping the rear end somewhat lower than before. The third time round move over towards the middle of the road the earth previously plowed. Then return to the ditch and plow it out deeper, moving the earth towards the middle whenever as much earth is plowed as the machine can move at once. Repeat this until the ditches are the proper depth, and the road as full and round as required ; then surface off as directed in repairing.